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A NEW PISSODES.

By Ralph Hopping.

Up to the present time only four species of Pissodes have been recognized from California.* Two of these are coast species, Pissodes barberi,Hopk. and P. radiatae,Hopk. The former from Humboldt County probably breeds on the Sitka spruce, the latter is known to breed on the Monterey pine and Knobcone pine. The remaining two are found in the high mountains of the State. One, Pissodes californicus,Hopk. breeding on the western yellow pine (Pinus ponderosa,Laws.) and the other, Pissodes yosemite,Hopk., breeding on Pinus ponderosa,Laws., Pinus lambertiana,Dougl. and Pinus monticola,Don.

None of the California species above mentioned have been found breeding on the lodgepole pine (Pinus contorta,Dougl.). The only species mentioned as breeding on lodgepole pine in Dr. Hopkins' monograph of the genus are Pissodes webbi,Hopk. from Arizona and New Mexico and Pissodes murrayanae,Hopk. from Oregon.

The work of Pissodes in California has been observed by the writer to consist of two distinct methods of attack either on the stem just above and below the ground, as in the attacks of P.yosemite, or in the terminals of the stem

* Contributions toward a monograph of the Bark-Weevils of the genus Pissodes, by A.D. Hopkins,, Tech. Series No.20 Pt-1,U.S. Dept. Agr. Nov. 11, 1911.

and limbs as in Pissodes terminalis described below. It is very doubtful whether any Californian species employs both methods of attack. At present P. terminalis seems to be the only Californian species attacking the terminals.

Pissodes terminalis, sp. nov.

The general color is yellow-brown. Elytral interspaces three and five broader than two and four and distinctly elevated, especially interspace three. The striae have deep irregularly spaced punctures which are often obliterated by the scales. Elytra with yellow scaled anterior spots and more or less fused posterior band of white and yellow scales near the vertex of the declivity the white scales extending to the sutural or median line and covering the first and second interspaces to the scutellum. The apices of the elytra are covered with yellow scale. The white scales also extend across the median portion of the femora of both the middle and posterior pairs of legs. The pronotum is densely covered with scales, those on the marginal half forming a white band which is sometimes fused with the pronotal spot. The basal angles are sub-rectangular the margin of the pronotum slightly rounded basally and gradually restricted anteriorly toward the head. Pronotum distinctly not as wide as the elytra. The beak is moderate in length, stout and distinctly red in color. Eye spots distinct and linear.

Length:- 5.5 mm to 6.3 mm.

Host:- Pinus contorta, Dougl.

Distribution:- Sierra Nevada Mts. from Kern to Lassen Counties, California. Type locality Chester, Plumas Co.,

California. Type and in the collection of the author where the species is represented by a series of 10 specimens. The distribution of the scales is more like P. schwarzi than that of any other species, except that the posterior band does not stop at the second interspace. Dr. Hopkins' key bfings it nearer to Pissodes fasciatus,Lec. from which it differs in the distinctly elevated third interspace. The accompanying plate was drawn by my son, George Hopping, a Berkeley High School student.

The work of this beetle was first noticed by the writer in 1907 in Kern County, California, near Cannel Mdws. at an elevation of about 7000 feet. Later it was found distributed from the region of Mt. Whitney to Lassen County, Calif. The most epidemic of its depredations, however, was near Chester in Plumas Co. Here larger areas of poles and saplings in lodgepole pine stands had seriously suffered from its attacks. While the terminals of the limbs were often attacked, the general attack was on the terminal of the stem. Attacks had continued in many trees for three successive years. This resulted in giving the trees a squat appearance, caused by curtailing the height growth with a consequent stumulation of lateral growth. Some areas of reproduction around Chester were badly infected by the fungus Peridermium harkessii. These areas were almost devoid of Pissodes attacks and in the infested areas where infection from fungus was slight the Pissodes attacks were largely in the healthy trees. The terminal is generally killed down to and sometimes including the first whorl of branches. The larvae mine the center or pith of the terminal, each terminal producing ~~some~~ from one to six adult weevils. The transformations take place in the fall, the adult apparently hibernating through the winter in the larval gallery. In many places the larvae were heavily prarsitized by a small dipterous insect.